Twin Johnson Ridge, Herb Cluster, and Clabber Creek Regeneration Harvest

Umpqua Resource Area
Coos Bay District

Environmental Assessment
EA OR125-98-03

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Tables

Chapter 1 - Purpose and Need for Action

The Umpqua Resource Area, Coos Bay District of the Bureau of Land Management (BLM), proposes several regeneration harvests (RH) totaling approximately 118 acres.

Table One: Project Areas and Watershed Analysis Documents

Sale Name	Unit #	. Acres	Legal Description	Subwatershed	Watershed Analysis Document
Twin Johnson Ridge	2	6	T. 20S., R.9W., Sec. 21	Middle Lower Smith R.	Smith River Watershed Analysis, Interagency 1997 and Middle Smith River Watershed Analysis, Coos Bay BLM 1995
	3	4	T. 20S., R.9W., Sec. 21	Middle Lower Smith R.	Smith River Watershed Analysis, Interagency 1997 and Middle Smith River Watershed Analysis, Coos Bay BLM 1995
	4	3	T. 20S., R.9W., Sec. 21	Middle Lower Smith R.	Smith River Watershed Analysis, Interagency 1997 and Middle Smith River Watershed Analysis, Coos Bay BLM 1995
	5	6	T. 20S., R.9W., Sec. 21	Middle Lower Smith R.	West Fork Smith River Subwatershed Analysis, Coos Bay BLM 1997
	6	23	T. 20S., R.9W., Sec. 27	Middle Lower Smith R.	West Fork Smith River Subwatershed Analysis, Coos Bay BLM 1997
	8	24	T. 20S., R.9W., Sec. 28	Middle Lower Smith R.	Smith River Watershed Analysis, Interagency 1997 and Middle Smith River Watershed Analysis, Coos Bay BLM 1995
Herb Cluster	1	11	T. 20S., R.8W., Sec. 5	Twin Sisters	Oxbow Watershed Analysis, Coos Bay BLM 1995
	2	18	T. 20S., R.8W., Sec. 5	Twin Sisters	Oxbow Watershed Analysis, Coos Bay BLM 1995
	3	3	T. 20S., R.8W., Sec. 5	Twin Sisters	Oxbow Watershed Analysis, Coos Bay BLM 1995
Clabber Creek	1	12	T. 20S., R.7W., Sec. 31	Lower Upper Smith R.	Smith River Watershed Analysis, Roseburg BLM 1995 and ACS addendum, Roseburg BLM 1998
	2	4	T. 20S., R.7W., Sec. 31	Lower Upper Smith R.	Smith River Watershed Analysis, Roseburg BLM 1995 and ACS addendum, Roseburg BLM 1998
	3	1	T. 20S., R.7W., Sec. 31	Lower Upper Smith R.	Smith River Watershed Analysis, Roseburg BLM 1995 and ACS addendum, Roseburg BLM 1998
	4A	2	T. 20S., R.7W., Sec. 31	Lower Upper Smith R.	Smith River Watershed Analysis, Roseburg BLM 1995 and ACS addendum, Roseburg BLM 1998
	4B	1	T. 20S., R.7W., Sec. 31	Lower Upper Smith R.	Smith River Watershed Analysis, Roseburg BLM 1995 and watershed analysis module documenting ACS objectives, Roseburg BLM 1998
Total	14	118			

The Watershed Analysis documents listed above are hereby incorporated by reference. The proposed project areas are within the General Forest Management Area (GFMA) and Riparian Reserve Land Use Allocations as designated by the *Coos Bay District Resource Management Plan (RMP) and Environmental Impact Statement* (BLM, 1995). This Environmental Assessment, (EA) OR125-98-03, addresses site specific, direct, indirect, and cumulative effects of this proposal.

This EA is tiered to the *Coos Bay District Resource Management Plan* and its Record of Decision (*RMP* ROD, BLM 1995); which is in conformance with the *Final Supplemental Environmental Impact Statement (FSEIS) on Management of Habitat for Late Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl (Northwest Forest Plan (NFP))* and its Record of Decision (Interagency 1994a).

A watershed analysis module documenting Aquatic Conservation Strategy (ACS) objectives for the REO Fifth Field watershed No. 1710030307 is scheduled to be complete by Coos Bay BLM by April 1999.

These documents (with the exception of the watershed analysis module, which will be available upon completion) are available for review at the Coos Bay and North Bend Public Libraries, the Coos Bay District Office of the BLM, the Coos Bay District's Internet Home Page at *http://www.or.blm.gov/coosbay*, and the Oregon State Office of the BLM in Portland, Oregon.

The analysis file for this EA, containing the Interdisciplinary team meeting notes, specialists' reports, silvicultural prescriptions, etc., is located at the Coos Bay District Office, and is hereby incorporated by reference.

The primary scoping process consisted of an interdisciplinary team defining the issues and alternatives that would be examined in detail in the EA. The public was informed of this planned EA through the Coos Bay District's *Planning Update* sent to individuals and organizations on the District's mailing list and the Coos Bay District Internet Home Page. There was no response by the public to this invitation to become involved.

Management Objectives

- Produce a sustainable supply of timber and other forest commodities to provide jobs and contribute to community stability.
- Work toward meeting the Coos Bay District's Probable Sale Quantity (PSQ) for Fiscal Year 2000 and beyond as identified in the RMP and the Northwest Forest Plan.
- Maintain habitat connectivity (along with other allocations such as Riparian Reserves) between Late-Successional Reserves.
- Provide habitat for a variety of organisms associated with both late-successional and early-succesisonal habitat.
- Provide for important ecological functions such as dispersal of organisms, carry-over of some species from one stand to the next, and maintenance of ecologically valuable structural components such as down logs, snags, and large trees.
- Work toward the goals established by the Transportation Management Objectives (TMO).
- Meet Aquatic Conservation Strategy (ACS) objectives.

Alternatives Identified but Eliminated from Consideration

- Unit 1 (13 acres) and Unit 7 (24 acres) of Twin Johnson Ridge Regeneration Harvest (RH) were found to be occupied by Marbled Murrelets and were dropped from the original proposal.
- A 14 acre unit (T. 20S., R. 09W., Section 20) identified in the original proposal to be harvested with the Twin Johnson Ridge RH is located in a Connectivity section. The RMP requires 25 to 30 percent of each Connectivity section to be late-successional forest, defined as 80 years and older, at any point in time. Riparian Reserves within Connectivity that have late-successional forest habitat count toward this percentage. The forest habitat within this section did not meet the 25 to 30 percent requirement and the unit was dropped from consideration.
- An 8 acre unit (T. 20S., R. 09W., Section 27) identified in the original proposal to be harvested with the Twin Johnson Ridge RH was identified as part of the one hundred acres of the best northern spotted owl (NSO) habitat retained closest to a nest site or owl activity center and was therefore eliminated from the proposal. These core areas are intended to preserve an intensively used portion of the owl's home range. Timber management activities within the 100-acre area should comply with management guidelines for Late-Successional Reserves (LSR). Because these areas are considered important to meeting objectives for species other than spotted owls, these areas are to be maintained even if they become no longer occupied by NSO (BLM 1995).

- Two other units totaling 5 acres (T. 21S., R. 08W., Section 9) identified as harvest units in the original Clabber Creek RH proposal were very small, large portions of the units were inside Riparian Reserves and one unit had an access problem and so were dropped from consideration.

Chapter 2: Alternatives Including the Proposed Action

This chapter describes the proposed action and alternatives.

No Action Alternative
Under the no action alternative, no forest management activities would occur at these specific locations. Since no volume would be produced to meet the District's PSQ, another area would be proposed for forest management activities to meet the objectives of the GFMA as detailed in the RMP ROD.

Proposed Action
Under the Proposed Action, all units would be regeneration harvested with cable systems. An estimated 2200 feet of new road construction would be built in association with Twin Johnson Ridge RH, 1200 feet of new road construction would be built in association with Herb Cluster RH, and 900 feet of new road construction would be built in association with Clabber Creek RH. All newly constructed roads in the proposed sale areas would be temporary or semi-permanent roads, and would be designed and constructed to minimize soil erosion and will be closed after harvest operations are complete, or following completion of planting. For definitions of permanent, semi-permanent, and temporary road designations and appropriate decommissioning techniques see the National Marine Fisheries Service (NMFS) Biological Opinion (BO) for the Umpqua River cutthroat trout dated March 18, 1997, available at the BLM Coos Bay District Office. Waterhole maintenance activities would also be completed on the Johnson Ridge, Jeff Creek, and Windy's waterholes.

Table Two: Project Areas and Volumes

Sale	Unit	Location	. Acres	Volume/Acre	Volume
Twin Johnson Ridge	Unit #2	20-9-21	6	43mbf/acre	258mbf
	Unit #3	20-9-21	4	43mbf/acre	172mbf
	Unit #4	20-9-21	3	43mbf/acre	129mbf
	Unit #5	20-9-21	6	45mbf/acre	270mbf
	Unit #6	20-9-27	23	40mbf/acre	920mbf
	Unit #8	20-9-28	24	44mbf/acre	1056mbf
Sub-total	6 units		66 acres		2805mbf
Herb Cluster	Unit #1	20-8-5	11	48mbf/acre	528mbf
	Unit #2	20-8-5	18	48mbf/acre	864mbf
	Unit #3	20-8-5	3	48mbf/acre	144mbf
Sub-total	3 units		32 acres		1536mbf
Clabber Creek	Unit #1	20-7-31	12	40mbf/acre	480mbf
	Unit #2	20-7-31	4	40mbf/acre	160mbf
	Unit #3	20-7-31	1	40mbf/acre	40mbf
	Unit #4A	20-7-31	2	40mbf/acre	80mbf
	Unit #4B	20-7-31	1	40mbf/acre	40mbf
Sub-total	5 units		20 acres		800mbf
TOTAL	14 units		118 acres		5141 mbf for the three sales

Project Design Features
- Full log suspension will be required over the streams with full and partial suspension over the remainder of the area where possible. Lift trees may be required to achieve desired suspension.

- The location, number, and width of yarding corridors through Riparian Reserves will be specified prior to yarding, natural openings will be used as much as possible. Not more than 250 feet of yarding corridors would be allowed within any 1000 feet of stream. Maximum corridor width will be 50 feet, and corridors will be at least 50 feet apart.

- Seven green wildlife trees per acre on average with a minimum average of six conifer trees will be retained. Green retention trees will be distributed in variable patterns to contribute to stand diversity. Further discussion and guidance on wildlife tree placement can be found in the Fire and Wildlife Reports located in the Analysis File.

- In addition to the green tree retention, all existing snags will be reserved from felling within the parameters of providing a safe working environment. Snags will be managed at a level of two per acre. The surveys that have been done to date in Twin Johnson Ridge Unit 2, Herb Cluster Unit 2, and Clabber Creek Unit 4A have shown no deficit of that level. After all surveys for the current snag densities are complete, additional green conifer trees will be marked to make up any deficit.

- In addition to the retention of seven green conifer trees per acre in Twin Johnson Ridge Unit 5, reserve a total of five extra hardwoods.

- In accordance with the ROD *Standards and Guidelines*, an average of 120 linear feet of decay class 1 and 2 logs per acre will be retained over the cutting area and reflecting the species mix of the unit. All logs will be at least 16 inches in diameter at the large end, and 16 feet in length. This requirement will be met by retaining one standing green conifer tree per acre (in addition to green wildlife trees) which will be felled after site preparation has been completed. Logs will be distributed throughout the cutting area, and not piled or concentrated in a few areas. In addition, all decay class 3, 4, and 5 logs will be retained.

- All material overhanging the edges of landings will be pulled back and landings reshaped.

- The Johnson Ridge waterhole will be lined with concrete. This waterhole is a primary source of water in that area. The waterhole is currently lined with bentonite (a clay-like substance), and loses water during the dry season. Also, the parking/turn-around area of the waterhole will be improved with additional gravel, danger trees will be removed and brush will be cut from around the waterhole to allow for a safe ingress/egress area for aircraft. The access road to the waterhole will also be maintained by brushing and adding gravel as needed.

- Grub Scotch broom from around the Johnson Ridge, Windy's and Jeff Creek waterholes and the ingress/egress areas for suppression of spread of this noxious weed.

- Remove danger trees and brush from around the Windy's and Jeff Creek waterholes and the ingress/egress areas for aircraft safety. Brush the access roads to the waterholes and gravel as needed.

- Broadcast burn under middle to late spring-like conditions using either aerial or hand ignition all Twin Johnson Ridge and Herb Cluster units and Clabber Creek Unit 1, except Twin Johnson Ridge Unit 6, which would be machine or hand piled and winter burned.

- Handpile, cover and winter burn all fuels 1/2" to 4" diameter in Clabber Creek Units 2, 3, and 4a.

- Leave no snags over the height of the existing canopy within 150' of the south boundary of Twin Johnson Ridge unit 6 to aid in the control of burning.

- Slash brush species (including but not limited to vine maple, salmonberry, huckleberry, rhododendron), hardwoods, that have not been marked to save (red alder, big leaf maple, etc.), and damaged conifer reproduction prior to broadcast burning or handpiling.

- Construct hand fire lines inside the adjacent reserve area in Twin Johnson Ridge Units 2, 3, 4, and 5, in all Herb Cluster units, and Clabber Creek unit 1.

- Construct either hand fire lines inside adjacent reserve area or cat fire lines where possible in Twin Johnson Units 6 and 8. If unit 6 is machine or hand piled and winter burned, fire line construction is not required.

- Roads to be closed will have culverts pulled on perennial, intermittent, and ephemeral streams. Proper drainage of the road surface will be assured by water barring. Roads will be tank trapped to block vehicle passage.

- All road cuts, landing areas, and fills will be seeded with native grass if available. If native grass seed is not available, an approved BLM seed mix will be used.

- Grass seed areas where significant bare soil becomes exposed from yarding or burning.

- All trees will be directionally felled away from reserve areas, previous sale areas, riparian areas, wildlife trees, and snags as safety permits.

- All existing down logs and advanced conifer regeneration will be protected to the greatest extent possible from damage by falling, yarding and subsequent site preparation.

- The timber sale contract will contain appropriate provisions for the appropriate disposal of wastes and hazardous materials handling. State of Oregon Department of Environmental Quality (DEQ) and Forest Practices guidelines for spill prevention and containment will apply to any sale contracts resulting from this EA. Site monitoring for solid and hazardous waste will be performed during the performance of this work in conjunction with normal contract administration. Any spills or releases resulting from operations shall be subject to the District Spill Plan. Post-harvest road closures will reduce the potential sites for illegal dumping.

- If Threatened and Endangered (T&E), Survey and Manage (S&M), Special Status, or Protection Buffer plant, animal or fish species are found in the sale units, management guidelines for the species will be implemented.

- To the greatest extent possible, hand-piled slash should be placed on closed roads and areas that have experienced any soil compaction to replace organic material that has been removed from the site.

- To prevent the introduction and spread of noxious weeds during the contract period, machinery and equipment will be washed prior to entering contract areas, and will be required to stay within road right-of-ways.

- Roads will be brushed prior to any harvest or road construction activities to help prevent the spread of existing noxious weeds. In the areas where noxious weeds are present, brushing will be done to allow for safe vehicle use while preventing contact with weed seed. If the harvest activities occur over multiple years, brushing of the weeds may need to be done each year activities occur.

- Consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) will be required before advertisement of the sales.

- Timber sale contracts will include a standard T&E species stipulation (special provision E-4).

- Any significant changes to the Proposed Action will require further review.

- Native American Grave Protection and Repatriation Act (43 CFR Part 10; IM OR-97-052) Notification Requirements will be followed.

- If any important cultural materials are encountered during the project, all work in the vicinity will stop and the District Archaeologist will be notified at once.

Chapter 3 - Affected Environment

The description of the existing conditions reflects the application of the No Action Alternative and is the baseline for measuring the effects of the Proposed Action.

Vegetation
Most of the late-successional forest habitat that remains in these subwatersheds is scattered in small, highly fragmented patches, mingled with large blocks of early and mid-successional habitats on federal and private lands, which are typically even-aged, single-canopy conifer stands with a minor hardwood component.

Species composition is largely attributed to the past fire history of the area. History shows evidence of at least six different fires beginning as early as 1651 through 1892. Fires burned on an average of every 48 years with moderate to high severity. The current age class distribution reflects the most recent fire history of the Vincent Creek fire of 1951 and the Oxbow Burn of 1966, leaving scattered remnant stands of mature, late-seral stage Douglas-fir across the landscape.

These proposed units are comprised primarily of a mature Douglas-fir overstory with a western hemlock understory. Some stands are mixed with western redcedar co-dominants. In areas where the dominant canopy is broken, red alder is prevalent. Other hardwoods include bigleaf maple, chinquapin, madrone, cascara buckthorn, bitter cherry and myrtlewood existing as minor components of the understory. A dense carpet of salal, sword fern and huckleberry layer the forest floor.

The watersheds meet the ROD requirement for being in 5th field watersheds that currently have over 15 percent of federal ownership in late-successional forest.

Table Three: Fifteen Percent Rule by REO Fifth Field Watershed Federal Ownership

REO Fifth Field Watershed	Total Acres	Regeneration Harvest Acres	Federal Acres	Federal Acres Over 80 Years	Percent Federal Acres Over 80 Years
1710030306	95,552	52	56,083	15,555	28%
				• Î 15,503	28%
1710030307	143,876	66	38,378	16,761	44%
				• Î 16,695	44%

Port-Orford-Cedar
The proposed project areas are not within the natural range of Port-Orford-cedar. In addition, no Port-Orford-cedar is known to occur on or near any of these timber sale units. (Noxious Weed/Port-Orford-cedar Report is located in the Analysis File.)

Noxious Weeds
Scotch Broom is present along the right-of-ways associated with these proposed timber sales, and range from lightly scattered to heavy concentrations of plants. In part, this is due to the following: initial failure to recognize the “noxious” nature of Scotch Broom, spread by human activities, lack of funding, past and present herbicide injunctions, previously no District integrated noxious weed plan, and current downfalls in regular road maintenance. (Noxious Weed/Port-Orford-cedar Report is located in the Analysis File)

Survey and Manage/Protection Buffer Species
The following Survey & Manage Strategy 2 and Protection Buffer species (Table C-3, RMP 1995) which may occur in this area and may need surveys prior to ground disturbing activities include (Botany Report is located in the Analysis File):

Mollusks
Prophysaon coeruleum (blue-gray taildropper)
Prophysaon dubium (papillose taildropper)
Megomphix hemphilli (Oregon megomphix)

Bryophytes
Diplopyllum plicatum
Kurzia makinoana
Ulota meglospora
Buxbaumia viridis

Rhzomnium nudum

Lichens
Psuedocyphellaria rainierinsis

Vascular Plants
Allotropa vigata
Cypripedium fasciculatum

Fungi
Otidea leporina
Otidea onotica
Otidea smithii
Sarcosoma mexicana

Wildlife Species

Special Status Species

NSO:

None of the 15 proposed units are within ¼ mile of a NSO site center. Twin Johnson Ridge Units 6 and 8 are within 1 ½ miles of known NSO site centers. None of the units are located within a Critical Habitat Unit for the NSO. Regeneration harvest would result in the removal of 118 acres of suitable habitat for the NSO.

Marbled Murrelet (MAMU):

The 118 harvest acres are classified as suitable MAMU habitat. All of the Twin Johnson Ridge and Herb Cluster units are within 1.0 mile of known MAMU occupied sites. None of the units are within a Critical Habitat Area for the MAMU. Most of the units in this proposal were surveyed in 1994 through 1997 and found to be unoccupied. According to District policy, these surveys will only be valid for three years after the protocol has been completed. If the sale of these units is delayed, the units will have to be resurveyed according to protocol to determine occupancy before the units can be advertised.

Other Bird Species:

The units are not within ¼ or ½ mile of any bald eagle nest or other key habitat features. Potential bald eagle habitat is present in Twin Johnson Ridge Unit 6. Use by peregrine falcons is unlikely as there are no cliffs in the immediate area. Other special status species which could occur in the vicinity of the proposed harvest are listed in Coos Bay District RMP, (BLM 1995, Appendix C). With the exception of the northern pygmy owl and northern saw-whet owl, there is no documentation of the presence of other Special Status bird species within the harvest areas.

Mammals:

The western gray squirrel and white-footed vole could occur in the area though no sightings have been recorded. The white-footed vole is strongly associated with riparian alder, small stream habitat. It is highly unlikely that the American marten or fisher would be present due to the small size and fragmentation of the units. The harvest area is outside the known range of the ringtail. Bat species that could occur in the area and are listed as Federal Species of Concern are: Yuma myotis, long-legged myotis, fringed myotis, long-eared myotis, and Townsend's big-eared bat (Csuti et al. 1997).

Amphibians and Reptiles:

The units contain habitat that could be utilized by five Special Status amphibian species and two reptile species. Surveys were not conducted for these species and none were seen during field reviews. Species associated with the aquatic system include: southern torrent salamander, red-legged frog, and tailed frog. Western toads are associated with forest or brush areas, and utilize shallow, slow water for breeding. Decayed down logs (preferably with bark intact) provide habitat for the clouded salamander. The units are most likely out of the range of the common kingsnake, but sharptail snakes may be present

S&M Species

There are no known Strategy 1 - S&M sites for terrestrial wildlife within the proposed harvest areas. The areas are outside the range of the amphibians listed under the Strategy 2 - S&M species. The thick bark of older trees and bark and cavities in snags within the units could be providing habitat for the ten bat species that can be found in the Western Oregon Coast Range. Most likely the protocol for bats will call for surveying caves, mines, bridges and buildings; none of these structures are present at the proposed harvest areas.

The red tree vole protocol was used to evaluate the two 5th field watersheds (1710030307 and 1710030306) for the proposed action. Both watersheds contain more than 10 percent Federal ownership. 1710030307 exceeded the 40 percent minimum habitat threshold so no surveys need to be conducted. Data for this watershed was from the Siuslaw National Forest (Wildlife Report is located in the Analysis File). Approximately sixty-nine percent of the watershed contains suitable red tree vole acres.

Surveys have been completed in the Clabber Creek units as 1710030306 only contains 24 percent suitable habitat for the red tree vole. The Geographical Information System (GIS) Forest Operations Inventory (FOI) size class 3 and above and stocking level 2 and above were used as selection criteria for suitable habitat. No red tree voles were found.

Other Wildlife

The units are providing habitat for a variety of wildlife species associated with late-successional forests that are not classified as Special Status Species. Due to the size of the units, most wildlife residing in these forest stands have small home ranges, or use the areas during part of their life cycle.

Special habitats that are used by wildlife include cliffs, talus, wet meadows, bogs and other unique areas. No special habitats were found inside any of the units.

The target for maintaining a 40 percent population level of primary cavity nesters in this area is 1.5 snags per acre (Marcot 1991). For this area, the primary cavity nesters are the red-breasted sapsucker, red-breasted nuthatch, Northern flicker, and downy, hairy, and pileated woodpeckers. Snags provide breeding habitat for 76 wildlife species and feeding habitat for 19 species (Brown 1985, Appendix 13). Special Status or S&M species that utilize snags may include: bald eagle, NSO, Northern pygmy owl, pileated woodpecker, purple martin, Western bluebird, silver-haired bat, fringed myotis, long-eared bat, long-legged myotis, American marten, and Pacific fisher, (USDI 1994, Appendix T). Snag composition pre-harvest monitoring was done for Twin Johnson Ridge Unit 2, Herb Cluster Unit 2, and Clabber Creek Unit 4. Results of this monitoring can be found in the 1998 Umpqua Resource Area Snag, Down Wood, and Wildlife Tree Monitoring Report (BLM, 1998).

At this point in time, we have not received survey protocols for the bat species: fringed myotis, silver-haired myotis, long-eared myotis and long-legged myotis.

In general, down wood is mainly in decay class 1 and early 2 that fell during winter storms during the last 2 years. There are scattered decay class 3, 4 and 5 down logs, but they are not present in high numbers due to the fire history of the area. Down wood pre-harvest monitoring was done for Twin Johnson Ridge Unit 2, Herb Cluster Unit 2, and Clabber Creek Unit 4. Results of this monitoring can be found in the 1998 Umpqua Resource Area Snag, Down Wood, and Wildlife Tree Monitoring Report (BLM, 1998).

Most units have a dense understory composed of huckleberry, salal, rhododendron, and vine maple. Other understory portions are more open with swordfern, and salal as the dominant vegetation. The understory provides good vertical structure for many bird species including winter wrens, thrushes, warblers, rufous-sided towhee, and dark-eyed junco. The understory also provides nesting opportunities for many neotropical migratory bird species.

Big game trails, bedding sites, and scat are located throughout all the units. The locations of the units provide good habitat for big game due to the adjacent younger stands that provide forage, and the proposed harvest units that provide thermal and hiding cover. Thermal cover is provided by stands that are at least 40 feet high and have a tree canopy cover of at least 70 percent (Brown 1985). Hiding cover is provided when the vegetation is capable of hiding 90 percent of a standing adult deer or elk at 200 feet or less (Brown 1985).

The units contain habitat that could be utilized by reptiles and amphibians. The lack of down wood in decay class 2 and early 3 may limit the use of the areas by salamanders that require moist conditions underneath the bark. Herptile surveys are best conducted in spring. These surveys are not required and will not be done. In general, decayed down logs (preferably with bark intact) are providing habitat for the clouded salamander (Special Status Species), ensatina, and western redback salamander. Dunn's salamander is a terrestrial salamander that utilizes the rocky edge of forested streams or permanently wet talus. Species associated with the aquatic system include: northwestern salamander, Pacific giant salamander, southern torrent salamander, roughskin newt, red-legged frog, tailed frog, Pacific tree frog, and western toad. The southern torrent

salamander, red-legged frog, tailed frog and western toad are Special Status Species.

Waterholes
The Johnson Ridge, Jeff Creek and Windy's waterholes can be utilized by a variety of wildlife. Northwestern salamander, roughskin newt, red-legged frog, and Pacific tree frog species may utilize the waterholes for part of their life cycle. The ponds are a source of drinking water for big game and other mammals. The open water may be utilized by various bird species and for drinking and foraging by bats. (Wildlife Report is located in the Analysis File.)

Hydrology
Precipitation in the form of rain is the main driver of the hydrologic processes in this subwatershed. It occasionally snows in the area, but the quantity and duration does not normally produce rain-on-snow events. The peak, low, and annual flows, and groundwater levels are all dependent on the amount, intensity, and distribution of rainfall. The close correlation between precipitation and runoff indicates that this system rapidly translates rainfall into runoff due to a high drainage density, low bedrock permeability, coarse textured, shallow soils, high precipitation totals, and steep slopes.

Twin Johnson Ridge RH
Units 2, 3 and 4 are drained to the west by 1st or 2nd order tributaries to Johnson Creek, which is a tributary to the Smith River. Unit 5 does not contain any defined channels and is a relatively flat unit that slopes onto the flood plain of the West Fork Smith River. Units 6 and 8 are drained to the south/southwest by Rachel Creek and several other 1st and 2nd order, frontal tributaries to the Smith River.

Herb Cluster RH
All of the units are drained to the east by 1st and 2nd order tributaries to Herb Creek which is a tributary to North Sisters creek.

Clabber Creek RH
All of the units are drained to the south/southwest by 1st order tributaries of Clabber Creek.

All of these tributaries are high gradient, step/pool, debris torrent systems that have been surveyed for the presence of fish and the inception point of each of the channels has been identified on the ground to determine the starting point of the riparian reserve. The reserve widths will be one or two site potential tree heights (220 or 440 feet) depending on the presence or absence of fish. These channels do not have an inner gorge by definition or an active flood plain and the distance dominated by riparian vegetation is also less than a site potential tree height. Therefore, the 220 or 440 foot riparian reserve widths are applied on each side of the stream channel in accordance with the RMP. (Hydrology Report is located in the Analysis File)

Native Fish Stocks - Including T&E Species
There are approximately 0.7 miles of known fish-bearing streams adjacent to the proposed sale units. The remaining 2.3 miles are non-fish bearing and contain quality habitat for amphibian and aquatic invertebrate species.

The proposed sales are encompassed by the West Fork Smith River, Johnson, Coon, Herb, Clabber, and Rachel Creek drainages, as well as one smaller Smith River frontal. Native anadromous fish species occurring within all drainages include coho salmon, winter steelhead trout, sea-run cutthroat trout, and Pacific lamprey. The mainstem Smith, and West Fork Smith Rivers and Johnson Creek also contain chinook salmon. Resident fish include the cutthroat trout, brook lamprey, and a diversity of dace and sculpin species. Some streams within Riparian Reserves directly adjacent to proposed sale units are generally small in nature and are known to contain cutthroat trout and sculpin. While the presence of these species are known, data related to population sizes or trends is not known.

Of the 175 "at-risk" anadromous fish stocks in Oregon listed in *Forest Ecosystem Management Assessment Team* (USDA; USDI 1993), three occur within or downstream from the proposed sale units. The Umpqua Basin cutthroat trout is currently listed as "Endangered" under the Endangered Species Act (ESA), the Oregon coastal coho salmon is listed as a "Threatened" species and the winter steelhead trout is currently considered "proposed" for listing under ESA.

Chinook, coho, steelhead, cutthroat trout, sculpin and potentially brook lamprey utilize streams directly adjacent to two of the proposed units. The West Fork Smith River lies adjacent to Twin Johnson unit 5 and is used primarily as a travel corridor for

all of the anadromous species. Resident cutthroat, sculpin and brook lamprey use this area mainly for rearing. Little reproduction of these species occurs in this area due to the large size of the river, the lack of spawning gravel and the lack of large woody debris for cover.

All fish and non-fish bearing streams adjacent to the proposed sale units have an abundance of fine organic debris, gravel/cobble substrates and large accumulations of woody debris (with the exception of the West Fork Smith River). The gravel and wood provide the substrate necessary for primary (algae) and habitat for secondary (insects) food production. These organisms provide a variety of foraging opportunities for both aquatic and terrestrial species. The large amounts of gravel/cobble substrate and wood also provide habitat components that are beneficial for amphibians.

Water Quality, Wetlands, and Riparian Habitats

Water quality within the major portion of the proposed sale area is thought to be good with regards to temperature and sedimentation for aquatic organisms. Little temperature data is available but it is likely that temperatures do not exceed DEQ standards in the majority of the streams as they are small in size, have good vegetative cover, and topographical shading. On several of the larger streams, temperature data was collected.

Table Four: Summary of Temperature Results

Stream Name	DEQ Standard (7-day maximum)	Recorded 7-day Maximum	No. Of Days Exceeding Standard	Year Data Collected
Johnson Creek	64°F	62.5°F	none	1993
Coon Creek	64°F	64.9°F	6	1996
West Fork Smith River	64°F	74.8°F	50	1996

Instream habitats for aquatic organisms adjacent to proposed units are composed primarily of short step pools and riffles. Sand, gravel and cobbles dominate the substrate and instream complexity is created by considerable amounts of down wood. Stream gradient ranges from approximately 2 to 50 percent.

The water flow from one small, steep tributary to Clabber Creek has been redirected from its channel as a result of a plugged culvert. The water has been diverted down the road causing minor amounts of erosion and a loss of connectivity between the stream on the uphill and downhill sides of the road. This perennial stream is non-fish bearing but probably important to other aquatic organisms such as amphibians and insects.

Riparian habitats are primarily co-dominated by lightly stocked stands of large Douglas-fir in combination with red alder and big-leaf maple. The understory largely consists of dense stands of salmonberry and sword fern. (Fisheries Report is located in the Analysis File)

Soils

The proposed units are located in the Coast Range physiographical province. The geological materials associated with the soils of the area are developed from the Tyee formation, which is composed of rhythmically bedded sandstone and siltstone. This formation tends to have high ground water in some areas, rapid runoff, steep slopes, and sharply alternating beds of sandstone and softer siltstones. The potential for slumps, debris, and earth flows are intensified by these characteristics. Roads are the most affected by these types of slope failures.

The soils found within the timber sales are the Bohannon loam, Preacher loam, Damewood gravelly loam, Umpcoos gravelly sandy loam, and small amounts of Meda loam and Blachly silty clay loam. Specific soil data can be obtained from the February, 1994, Douglas County Area, Oregon Soil Inventory. (Soils Report is located in the Analysis File)

Chapter 4 - Environmental Consequences

This chapter is organized by resources.

Analysis of the No Action and Proposed Action Alternatives has shown no impacts to Areas of Critical Environmental Concern (ACEC), prime or unique farm lands, flood plains, wetlands, Wild and Scenic Rivers, or wilderness values.

Impacts on Vegetation

No Action Alternative

The No Action Alternative would allow for the proposed stands to continue the late-seral stage of development. This would lead to a gradual decline of the existing dominant, Douglas-fir, overstory with the replacement of younger, smaller, less vigorous, shade tolerant species, such as western hemlock and western red cedar. Since Douglas-fir will outlast any other species in the understory except red cedar, without some type of disturbance such as windthrow, fire, or logging, establishment of conifer reproductions in hardwood and brush dominated understories is not likely.

Proposed Action

Regeneration harvest will result in removing most of the overstory trees. The stands will then be replanted with conifer seedlings following site preparation. After harvest, perennial vegetation growth is promoted in species capable of sprouting from existing root stocks, such as salmonberry, sword fern, due to the increased availability of light and nutrients. Disturbed soil surfaces also provide an excellent seedbed for light seeded annual and perennial species such as fireweed, thistle, bracken fern, foxglove, and red alder. Once the conifer seedlings have overtopped the existing competing species, or are released by manually cutting brush, they will grow at a relatively equal and constant rate, dominating the stand once again over time. Annual weeds will invade these sites for a short time until perennial vegetation reestablishes. (See Silviculture Prescription located in the analysis file.)

Harvesting the stands will increase its vulnerability to infestation by exotics, which thrive in the resulting disturbed soils and brighter light conditions. However, the canopy will eventually close, shading out weedy species. Some herbaceous species and epiphytes may have reduced vigor from the alteration of the microclimate, while some species of herbs and shrubs will flourish from the increased sunlight. Eventually, as the forest grows, conditions will come to approximate the current condition.

Cumulative impacts include previous activities, such as timber harvest, road construction, and silvicultural activities, in relation to the effect on plants that are dependant upon late-successional habitats. Many of the stands adjacent to the proposed project area are in an early to mid-seral stage. These forests typically have less vegetative diversity than older forests. The stands in private ownership are expected to be on a short rotation, negating the probability of these forest stands reaching a late-seral condition. Most of the private stands in the area have already been harvested.

Impacts on Noxious Weeds

No Action Alternative

Scotch broom is considered a major infestation in the north half of the Umpqua Resource Area. The new District Integrated Noxious Weed EA indicates that major infestations are the lowest priority for control/eradication, unless biological agent(s) become available. Also, standard road maintenance procedures are to brush mainline roads, with spurs only being done as time and funding allows. Without control measures, existing populations will continue to spread in the analysis area.

Proposed Action

Brooms rate of spread should temporarily decrease under this alternative. Brushing roads for visibility/safety measures removes the current plants with attached seeds and prevents contact and spread by vehicles using the road. New plants that become established or old plants that resprout will take several seasons to flower or obtain full seed production, thus the current rate of spread will temporarily decrease. Several years following completion of harvest, broom will return to its present seed production and spread rates. If disturbed ground is available along the roads or in the timber sale units, the potential exists for broom to seed into these areas. Broadcast seeding disturbed areas with grass will help prevent broom from invading these areas.

Impacts on Survey and Manage/ Protection Buffer Species

No Action Alternative
There would be no significant negative consequences for botany or mollusks if the No Action Alternative were adopted.

Proposed Action
This proposed action could potentially impact habitat and/or populations of S&M Strategy 1 and 2 and Protection Buffer species. Although surveys are not required for Strategy 1 species, if they are located while conducting surveys for other species, the locations will be managed according to the approved version of management recommendations. Strategy 2 and Protection Buffer species locations will also be managed to ensure viability.

Impacts on Wildlife
No Action Alternative
There would be no significant negative consequences for wildlife if the No Action Alternative were adopted. If the units were not harvested, they would continue to provide habitat for many wildlife species listed in the Affected Environment section. The stands would continue to provide late-successional habitat until landscape scale natural disturbance events occur. Timber volume from other units would be proposed for harvest in order to meet the commodity production objectives of the RMP and ROD.

Proposed Action
Wildlife Species
Under the Proposed Action, 118 acres would be harvested from 14 units. The major impacts associated with harvest would be the change in seral stage from late to early seral and the loss of habitat characteristics associated with older stands, including some of the existing quality and quantity of down wood in all decay classes, snags, and vertical structure. Harvest could also cause direct mortality and the loss of habitat for breeding, feeding, dispersal or shelter. Birds, eggs, hatchlings, and their nests could be destroyed if harvest occurs during the spring and summer. Other species affected by the sales would be elk and deer due to the loss of thermal and hiding cover and improvement of grazing.

Harvest would remove 118 acres of suitable habitat for both the NSO and MAMU (assuming MAMU occupied behavior is not detected and the unit(s) are not dropped). The proposed action would also remove potential suitable habitat for other Special Status species and S&M species. This would not affect the long-term viability of these species as other land use designations in the ROD are expected to provide sufficient habitat. Negative effects of regeneration harvests in the GFMA on wildlife have been analyzed in the FSEIS (Interagency 1994a) and RMP (BLM 1995).

Threatened and Endangered Wildlife Species Consultation
Twin Johnson Ridge and Herb Creek regeneration harvests will require consultation with the U.S. Fish and Wildlife Service (USFWS) for their effects on the northern spotted owl and marbled murrelet. Clabber Creek regeneration harvest was included in the Coos Bay District Biological Assessment (C96-01b) and the USFWS Biological Opinion (#1-7-98-F-079) dated February 18, 1998.

The harvests should not significantly negatively effect any other Special Status Species as there was no presence of special habitats or documented sighting of species.

Wildlife Habitat
The dense understory of the units would require broadcast burning for site preparation. This burning can impact down logs by: charring, removal, or hardening of bark; accelerated decay process; and removal of associated litter or sloughed bark. An important feature of decay class 1 and 2 down wood is that the bark is mainly intact. The pattern under the bark provides valleys and pockets for small wildlife to occupy. The bark holds in moisture, which creates suitable habitat for salamanders and invertebrates. If the bark is removed, or fire charred, the logs' water holding capacity and associated habitat characteristics are diminished. To lessen this impact, one standing tree per acre will be marked (in addition to the wildlife trees) and felled following site preparation. There are negative consequences from dropping standing trees to meet the down wood requirements. One consequence is that the decay class 1 and 2 down wood would be introduced all at once, verses existing wood that had fallen over time. The cutting of trees would not represent the natural placement of down wood. Allowing the removal of existing decay class 1 and 2 down wood also removes any plants or animals that may have colonized the structure. Placement of the down wood after harvest operations would eliminate the breakage and damage that occurs during operations for decay class 1 and 2, however this would still occur on decay class 3 through 5 logs. Wildlife trees

should be clumped around existing decay class 3 through 5 wood when possible to alleviate impacts from harvest and site preparation activities, and to create a moist microclimate after harvest.

Prescribed burning may decrease the number of snags through fire consumption and cutting for safety concerns, or it may decrease the quality through bark charring and/or sloughing. Snags may also be lost through harvest operations or cut due to safety concerns. Snag numbers could also increase if green trees are killed during site preparation. The 40 percent RMP ROD requirement for cavity-nesting birds in the area is 1.5 snags per acre. Since some snag loss due to harvest and site preparation activities is inevitable, additional green retention trees will be left where snags are below 2 per acre. Since snags in advanced condition of decay are most likely to be lost by harvest and site preparation, clumping wildlife trees around snags would help to buffer the snags from these impacts.

Riparian Reserves

The full interim widths should protect riparian dependent species. The intact riparian reserves for these sales, especially units with 440-foot riparian buffers along fish bearing streams, would still serve as late-seral habitat; however, the size of this refugia would be reduced because of the adjacent sale. Riparian Reserves can be a sink for these late-successional species, assuming they can migrate to the reserves, and that the area is sufficient to meet their habitat needs (food, water, shelter and space). Clabber Creek units and Herb Cluster unit 2 would have yarding through the Riparian Reserves. The environmental impact of placing yarding corridors through the reserves would be less than the impact of constructing additional roads to reach these units. Trees may need to be cut for the corridor, and tops may be broken during the operation; these structures will remain on site.

Road Construction

New road construction and road renovation would not impact any known special wildlife habitats (i.e., meadow, cave, wetland). The temporary dirt roads would be built, used and closed in the same year prior to the wet season. The semipermanent roads would be protected from soil erosion prior to each wet season and closed after planting of units. Closing and stabilizing the roads would lessen the risk of erosion or fine sediment input to stream channels. While the roads are open, wildlife could be disturbed by human use of the road. Closing the roads will eliminate this type of disturbance. The roadbed would still exist; however, and may be a barrier to some (undocumented) wildlife species. Installation of cross drains on the Clabber Creek road would decrease road erosion and fine sediment delivery to the stream. The harvest areas are within the Siuslaw big game unit. The RMP road density goal for Federal land in the area is 2.9 miles per section. As these roads are categorized as temporary and would be closed, they would not, by definition (NMFS BO, March 18, 1997), increase road densities in the watersheds. There are no other roads associated with the sale that would be candidates for closure to reduce the road densities.

Waterholes

Maintenance of the three water holes would not cause any significant negative impacts to wildlife. The potential impacts to wildlife include: generation of noise above ambient levels, direct mortality of herptiles or small mammals from machinery operation, and possible fuel/lubricant leakage or spill. A concrete surface would be preferred over butyl rubber when replacing the lining as concrete provides a rougher substrate that is not as slick when wet or covered with litter/moss etc. This would provide more traction for wildlife and decrease the risk of an animal not being able to climb out of the waterhole. Waterhole maintenance meets the criteria for the moderate duration, low-to-moderate noise level project category (FY98-02) in the Coos Bay District Biological Assessment (C96-01b). A Biological Opinion was received from the USFWS in February of 1998 (BO # 1-7-98-079) that includes the following criteria. As the Johnson Creek waterhole is within 0.25 miles of an occupied marbled murrelet site, the project would not occur from April 1 through August 5. From August 6 through September 15, activities would be scheduled to occur no earlier than 2 hours after sunrise and no later than 2 hours before sunset. Windy's waterhole would require a daily timing restriction from April 1 through September 15 where activities would be scheduled to occur no earlier than 2 hours after sunrise and no later than 2 hours before sunset. There would be no restrictions for maintenance of the Jeff Creek waterhole.

Cumulative Effects

If the proposed units are not harvested, the volume would be harvested from another location in order to meet the objectives of the ROD and RMP. Cumulative effects of timber harvest at the landscape scale have been mitigated in the ROD primarily by the vast network of reserves on Federal lands, including the retention of intact Riparian Reserves within the GFMA land use allocation. Cumulative impacts, however, can still occur at the local level. The cumulative effect of harvesting the older-

aged stands within the GFMA is the loss of late-successional habitat, and closely associated wildlife, within the subwatershed.

The Late-Successional Reserve land use allocation is intended to provide a network of habitat for species closely associated with late-successional forest. Older-aged stands within the GFMA, including these units, are providing late-successional habitat for wildlife species that in general have small home ranges. When these units are harvested, the less mobile species, like salamanders, invertebrates, and small mammals, may not be able to disperse to other suitable habitat areas in the GFMA or to the closest reserve area. As the stands in this GFMA are harvested, there would be a local level cumulative impact of the loss of late-successional forest patches, and related wildlife individuals. This is especially evident for the Herb Cluster and Clabber Creek units as they are isolated from other late-successional patches. This is consistent with the GFMA designation, and late-successional habitat would be provided through other land use allocations.

Impacts on Hydrology (Water Quality) and Channel Morphology

No Action Alternative

No effects are anticipated from the No Action Alternative.

Proposed Action

This alternative will directly affect the hydrology of the tributaries within the project area. Increases in the annual yield, low flows, and the spring and fall peak flows are expected due to the increase in the amount of water available because of the removal of vegetation and the corresponding reduction in evapotranspiration losses. The increased spring and fall peaks, however, are still smaller than the peaks that typically occur during large winter storms.

Any increase in flow is not expected to produce large amounts of sediment from channel downcutting due to the bedrock control of these systems. There is little if any increase anticipated in the amount of sediment chronically delivered directly to the tributaries due to the limited routing of sediment through the Riparian Reserves. Some short term sediment delivery may result from road construction/renovation but this may also be offset by correcting drainage problems on existing roads and/or culvert replacements, seasonal restrictions on construction/renovation, and forage seeding of all exposed cuts and fills. It should be noted that any sediment resulting from this road work would be insignificant in comparison to a naturally occurring mass failure, which is the most likely mechanism to deliver large quantities of sediment and debris to these tributaries.

This alternative will have the effects listed above at the site scale; however any effects, even if quite large on a site, become increasing difficult to detect downstream because of fluctuations in flows from groundwater sources, tributaries, or timing and varying intensities of precipitation events. This natural variability is coupled with the fact that as small streams join and form increasingly large drainage networks, the ability of individual actions in small drainages to affect hydrology in the larger subwatersheds decreases. The magnitude of any affect is generally proportional to the area that is treated. Since this project impacts only 0.3% (66 acres out of 24710 acres) of the Middle Lower Smith River subwatershed, 0.2% (32 acres out of 15957 acres) of the Twin Sisters subwatershed and 0.2% (20 acres out of 10110 acres) of the Lower Upper Smith River subwatershed it is not possible to separate these cumulative effects from natural variability. (Hydrology Report is located in the Analysis File)

Impacts on Fisheries

No Action Alternative

Under this alternative, no affects to listed or proposed T&E fish species are expected. No yarding corridors within Riparian Reserves would occur and no new roads would be built. Clabber Creek Road would not be upgraded and the plugged culvert on this road would not be replaced, thereby maintaining the discontinuity of this small non-fish bearing stream and limiting aquatic organism access to the upper reaches of the stream.

Proposed Action

Direct and Indirect Affects

Consultation with NMFS has not yet been completed but will likely lead to a “may affect, not likely to adversely affect” determination for the Umpqua Basin cutthroat trout and coho and the subsequent issuance of an incidental take permit. The determination is based on the increase in watershed disturbance history (timber harvest related) as listed in the *“Matrix of Factors and Indicators*” and the *“Checklist for Documenting Environmental Baseline and Effects of Proposed Actions”* (Fisheries Report is located in the Analysis File). The determination of effects will also likely conclude that the proposed

action conforms with the NFP ROD and the Coos Bay District RMP's Best Management Practices. The proposed action does not retard the attainment of the ACS objectives. No significant affects to listed or proposed T&E fish species are therefore expected to occur primarily due to the large Riparian Reserves network and the construction of temporary or semi-permanent roads in stable locations (i.e. ridgetops).

No harvest activities would occur, other than several yarding corridors, within the Riparian Reserves thereby maintaining thermal protection for stream channels. No measurable changes to aquatic/fish habitats within or downstream from the sale areas are expected. In the event of a landslide, Riparian Reserve trees within proposed sale areas would provide the large wood and coarse substrate necessary to create habitats important to aquatic organisms.

Yarding corridors through portions of the Riparian Reserves on Herb Cluster Unit 2 and the Clabber Creek units should not have measurable effects on the aquatic or riparian systems as full suspension of logs over streams will be required and yarding widths will be kept to a minimum. Observations from recently harvested timber sale units where units have been designed to incorporate the Forest Plan standards, show little change in the Riparian Reserves system due to yarding corridors. Corridors were barely visible and the damage to reserve trees was minimal. Damage was usually limited to the breakage of a few tree tops which subsequently provided additional woody habitat to the aquatic or riparian system.

The ridgetop construction of temporary (Twin Johnson Ridge units 1, 5, 8, and Herb Cluster unit 3) and semi-permanent roads (Herb Cluster unit 1 and Clabber Creek unit 1) would minimize runoff and the potential contributions of sediment into stream channels. The closure of these roads following harvest or reforestation activities would provide for long term stability of the roadbed. The renovation of several roads would result in improved drainage through the installation of additional ditch line culverts.

Cumulative Effects
Upon completion of the proposed action, the majority of older forest stands (80+years) would have been removed from the Johnson, Coon, Herb and Clabber drainages. Remaining stands in Johnson and Coon would generally range in age from 5- 80 years old on both federal and private lands. In the Herb and Clabber drainages, stands average 30 years old as a result of the Oxbow Burn. Units harvested within the Johnson and Coon drainages by the BLM in the 1980's provided narrow (80') no-cut streamside buffers on fish bearing streams. On private lands, little to no buffers were retained and subsequently large stands of red alder dominate these sites. Regardless of the Proposed Action, large portions of these drainages currently lack future recruitment potential for in-stream conifer wood in the short term (50-100 years). In the Clabber and Herb Creek drainages, larger wood will probably be available in 50 years or less. Over the long term, the mixed ownership pattern of all the drainages will likely maintain the extremes between large and narrow buffers on federal and private lands. Within the proposed sale areas, the Riparian Reserves network would maintain both long and short term woody debris inputs in areas adjacent to sale units. Over time, contributions of additional wood to downstream reaches would also occur as a result of hillslope processes.

Water temperature is currently being maintained by a heavy canopy of alder, salmonberry and older (10+ years) conifer reproduction along drainages throughout the proposed harvest units. Over time, the proposed action should not alter the current temperature regime adjacent to proposed harvest units and should continue to provide cool water to downstream reaches outside the sale area.

Impacts on Cultural Resources and Native American Religious Concerns
No Action Alternative
No effects are anticipated from the No Action Alternative.

Proposed Action
There are no anticipated specific, direct, or indirect effects on cultural resources or Native American religious concerns from the proposed regeneration harvest of these units, largely because cultural resources are not known to exist in these units. The proposed action is not likely to expose, damage, or destroy any cultural resources. (Cultural Resources Report is located in the Analysis File)

Impacts on Solid and Hazardous Waste
No Action Alternative
No effects are anticipated from the No Action Alternative.

Proposed Action
No effects are anticipated from the proposed action, unless a release of hazardous materials occurs as a result of harvest operations. Depending upon the substance, amount, and environmental conditions in the area affected by a release, the impacts could range from minimal and short term to more extensive and longer lasting.

Minor amounts (less than 2 gallons) of diesel fuel, gasoline or hydraulic fluid leaking from heavy equipment onto a road surface, with little or no chance of migrating to surface or ground water before absorption or evaporation, would be an example of minimal impact.

If a petroleum substance is released at or above the State of Oregon reportable quantity of 42 gallons, or has the likelihood of reaching ground or surface water regardless of amount, it could cause from mild to more severe impact to the environment. This impact could range from localized contamination of soil and vegetation, to entry into surface water and toxic effects upon fisheries and aquatic life habitat. The greater the quantity of material released, the more exponential the effects are likely to be, coupled with variable conditions such as the location of the spill, seasonal water levels, flow velocity, and rainfall.

Proposed road closures will diminish the future potential for illegal dumping of solid and hazardous waste along roadsides and on landings. (Hazardous Materials Report is located in the Analysis File)

Impacts on Soils
No Action Alternative
No effects are anticipated from the No Action Alternative

Proposed Action
Approximately 4300 feet of new temporary and semipermanent road is proposed for construction. There would be 2200 feet of new construction built for access to the Twin Johnson Ridge Timber Sale, 900 feet for the Clabber Creek Timber Sale and 1200 feet of new construction built to access the Herb Cluster Timber Sale. This would comprise approximately 3.4 acres of land being taken out of production. The road constructed on Clabber Creek Unit 4, Twin Johnson Ridge Unit 1, and Herb Cluster Unit 1 are located on ridgetops, so erosion and sedimentation would be minimal. Twin Johnson Ridge Units 6 and 8 would be constructed on moderate sideslopes. The additional road construction would be small spur roads for landing sites.

Some soil erosion from cutbank sloughing and from the road surface can be expected, especially from heavy rains during the first winter following construction, harvest and site preparation activities. Some soil displacement would be expected from yarding activities. Surface erosion generated during harvest, road and landing construction would travel very short distances before being trapped by duff and woody materials. In the time frame of about 3 to 15 years following harvest, the roots of conifer stumps decay and loose strength. This in conjunction with the overall steepness of the units, raises the possibility for mid-slope soil failures within the logged units. These failures usually only occur during extraordinarily heavy rainstorm events, heavy rain-on-snow events and when the soils are already heavily saturated. These sorts of failures are generally small debris avalanches, and do not travel very far. (The Soils Report is located in the Analysis File)

Impacts on Air Quality
No Action Alternative
No effects are anticipated from the No Action Alternative.

Proposed Action
Prescribed burning will be conducted in accordance with the Oregon Department of Forestry's Smoke Management Plan. Winter or late fall burning may result in the accumulation of smoke in nearby, low-lying areas due to temperature inversions. Spring burning will result in the best dispersal of the smoke due to onshore winds through the Coast Range Mountains and less accumulation of residual smoke into nearby low lying areas because of better dispersal of the initial smoke column.

Impacts on Environmental Justice
There are no identified significant adverse human or environmental effects associated with this EA for low income or minority groups.

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